

- 1. An immunopotentiating composition comprising:
 - (a) an immunopotentiating protein; and
 - (b) a second compound having an epitope against which a cellular or humoral immune response is desired.
- The composition of claim 1, wherein the immunopotentiating protein comprises a protein derived from microorganisms.
- The composition of claim 2, wherein the protein derived from microorganisms comprises a bacterial protein.
- The composition of claim 3, wherein the bacterial protein comprises a staphylococcal enterotoxin.
- 5. The composition of claim 1, wherein the immunopotentiating protein comprises a monoclonal antibody directed against a T cell activation molecule on the cell surface of a T cell.
- 30 6. The composition of claim 5, wherein the T cell activation molecule comprises a variable or constant region epitope expressed on an antigen specific T cell receptor polymorphic TcR α , β , γ or δ chain.





7. The composition of claim 5, wherein the monoclonal antibody is directed against non-polymorphic TcR-associated CD3 chains, γ , δ , ϵ or ζ .

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8. The composition of claim 7, wherein the monoclonal antibody comprises OKT3, SP34, or 64.1.

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The composition of claim 5, wherein the monoclonal antibody is directed against T cell surface antigens distinct from, and not physically associated on the cell surface with, TcR.

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 10. The composition of claim 9, wherein the monoclonal antibody is directed against Thy-1.

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11. The composition of claim 9, wherein the monoclonal antibody is directed against an activation epitope expressed on a member of the Ly-6 protein family.

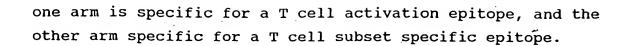
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12. The composition of claim 9, wherein the monoclonal antibody(s) is directed against human CD2.

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13. The composition of claim 9, wherein the monoclonal antibody is directed against CD28.

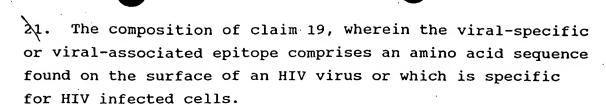
14. The composition of claim 1, wherein the immunopotentiating protein is a bispecific agent, wherein



- 15. The composition of claim 14, wherein the bispecific agent comprises a union of two monoclonal antibodies one directed individually against CD3, the other against CD4.
- 16. The composition of claim 1, wherein the second protein comprises a peptide of from about 8 to about 100 amino acids in length.
 - 17. The composition of claim 1, wherein the second protein comprises a peptide of from about 8 to about 50 amino acids in length.
 - 18. The composition of claim 1 wherein the second protein comprises a peptide derived from a tumor-specific or tumor-associated epitope.
 - 19. The composition of claim 1, wherein the second protein comprises a peptide derived from a viral-specific or viral-associated epitope.
- The composition of claim 1, wherein the second protein comprises a peptide with an amino acid sequence homologous to that derived from a gene in a bacteria, fungus, protozoal or metazoal parasite.



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epitope from the gp120 envelope protein of HIV-1.

composition of the viral-specific epitope comprises an

The composition of claim 21, wherein the peptide

The composition of claim 22, wherein the gp120 envelope protein epitope comprises peptides 18, T1, or T2.

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The composition of claim 19, wherein the viral-specific epitope comprises amino acid sequences homologous with those expressed on the surface of human hepatitis virus.

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The composition of claim 19, wherein the viral-specific epitope comprises amino acid sequences homologous with those expressed on the cell surface of viruses causing influenza.

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The composition of claim 1, wherein the immunopotentiating protein and the second protein are conjugated by crosslinking them to each other.

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27. The composition of claim 1, wherein the second compound comprises a protein.





28. The composition of claim 27, wherein the protein includes an amino acid sequence against which an immune response is desired.

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29. The composition of claim 1, further defined as a heteroconjugate composition wherein the immunopotentiating protein is conjugated with the second compound to form a heteroconjugate agent.

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- 30. A method of preparing a heteroconjugate agent for eliciting or enhancing a cellular or humoral immune response to an epitope contained within an amino acid sequence, the method comprising the steps of:
 - (a) obtaining an immunopoten fiating protein; and
 - (b) conjugating to said immunopotentiating protein a second compound to form the heteroconjugate agent, the second compound having an epitope against which a cellular or humoral immune response is desired.

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31. A method of eliciting or enhancing a cellular or humoral immune response in a mammal, to an epitope contained within a selected compound, the method comprising preparing an immunopotentiating composition in accordance with claim 1; and administering to the mammal an amount of said agent effective to elicit or enhance such a cellular or humoral immune response.

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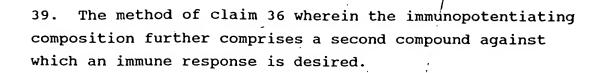




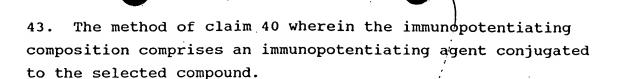
- 32. The method of claim 31, wherein the/mammal is a mouse, hamster, rat, rabbit, farm animal or primate.
- 33. The method of claim 32, wherein the primate is a human.
- 34. A vaccine comprising a immunogenically effective amount of a heteroconjugate agent defined in accordance with claim 1, in combination with a pharmaceutically acceptable diluent.
- 35. A method of stimulating or enhancing the immune system of a mammal which comprises preparing an immunopotentiating composition which includes an immunopotentiating agent characterized as having an ability to stimulate an immune response; combining the agent in a pharmaceutically acceptable vehicle; administering the resulting compound to the mammal in amounts effective to stimulate an immune response.
- 36. The method of claim 35, wherein the mammal has tumor.
- 37. The method of claim 35, wherein the mammal is immuno-compromised.
- 38. The method of claim 35 in which the mammal has an infection.

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- 40. A method of preparing monoclonal antibodies against a selected compound, comprising the steps of:
 - (a) immunizing mammals with an immunopotentiating composition as defined by claim 1;
 - (b) fusing lymphoid cells of the immunized mammal with myeloma cells to form fusion products which include hybridomas;
 - (c) culturing the fusion products in a selective medium to select for said hybridomas;
 - (d) screening the hybridomas to identify a hybridoma which secretes a monoclonal antibody directed against the selected compound; and
 - (e) isolating and culturing the identified hybridoma to prepare the monoclonal antibody.
- 41. The method of claim 40 wherein the selected compound is a protein.
- 42. The method of claim 40 wherein the immunopotentiating composition comprises a <u>Staphylococcus</u> enterotoxin.



44. A method for recruiting hematopoietic bone marrow stem cells of an organism, said method comprising administering an immunopotentiating agent in an amount effective to stimulate the development of said stem cells.

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45. The method of claim 44 wherein the immunopotentiating agent is an anti-CD3 mAb.

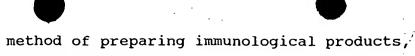
46. The method of claim 45 wherein the immunopotentiating agent is a <u>Staphylococcus</u> enterotoxin.

- 47. A method for enhancing the engraftment of hematopoietic tissue transplants in an individual receiving such a transplant, said method comprising administering to said individual an amount of an immunopotentiating agent effective to stimulate stem cell recruitment.
- 48. The method of claim 47 wherein the immunopotentiating agent comprises an anti-CD3 mAb.

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49. The method of claim 47 wherein the immunopotentiating agent is a Staphylococcus enterotoxin.





- A method of preparing immunological products comprising the steps of:
 - immunizing mammals with an immunopotentiating (a) composition which includes an immunopotentiating agent; and
 - obtaining immunological products/from said (b) immunized mammal, said products/including T cells, B cells or antibodies.
- The method of claim 50, wherein said immunopotentiating 51. composition further comprises a second compound against which an immune response is desired.
- The method of claim 50 wherein said immunologic 52. products comprise antibodies, and the method further comprises preparing a gamma globulin fraction from said antibodies.
- The method of claim 50, wherein said mammal is a human. 53.
- A method of adminstering immunologic products to a mammal comprising preparing such products in accordance with claim 50 and administering said products to a mammal.